

REMARKS

Claims 1-15, 18-22 and 24 are currently pending in this application.

Rejection of Claim 24 under 35 U.S.C. 102(b)

Claim 24 stands rejected under 35 U.S.C. 102(b) as being anticipated by Faroudja.

The present invention as claimed in claim 24 discloses a method for processing non-telecined progressive scan video signals. The method includes the steps of adaptively filtering the signal to produce a filtered signal. The filtered signal is then converted to a lower spatial resolution signal and MPEG encoded. The encoded lower spatial resolution signal is then conveyed to an output channel. The adaptive filtering is a function of image signal parameters prior to filtering.

Specifically, claim 24 recites:

“A method for processing non-telecined progressive scan video signals, comprising the steps of:
 adaptively filtering said detected signal to produce a filtered signal;
 converting said filtered signal to a lower spatial resolution to produce a lower spatial resolution signal;
 MPEG encoding said lower spatial resolution signal to produce an encoded signal; and
 conveying said encoded signal to an output channel,
wherein the adaptive filtering is a function of image signal parameters prior to filtering.”

Faroudja neither discloses nor suggests adaptive filtering which is a function of image signal parameters as in the present claimed invention. Contrary to the assertions of the Examiner, the low pass filter of Faroudja is not an adaptive filter. As discussed in the present specification on Page 11, lines 4-15, the processor can be adaptively modified to filter depending upon the parameters used to define the filter adaptation. For example, variance in an image frame can be used to segment the image into regions for different processing. Colorimetry of the image may be used to identify areas of low complexity. Textures may identify regions which may be filtered more than other regions. Cinematic composition may be used to locate important figures or actions in

the image which require higher coding efficiency and thus less filtering. Such is neither disclosed nor suggested by Faroudja which only discloses a low pass filtering.

Faroudja is concerned with recording or transmitting 24 or 25 fps motion picture film sources and non-film interlaced or progressively scanned video sources as progressively scanned video at a nominal frame rate of 24 or 25 frames per second. Thus there is no motivation in Faroudja for performing an adaptive filtering as in the present claimed invention. In fact, the low pass filter 20 referred to by the Examiner is stated to preferably have the same characteristics as a 27 pole vertical low pass filter having a response down 20dB at 525-625-line vertical resolution. Nowhere in Faroudja is it disclosed or suggested that the filter is an adaptive filter.

Furthermore, Faroudja neither discloses nor suggests an adaptive filtering which “is a function of image signal parameters” as in the present claimed invention. The Examiner states that as the filtering in Faroudja is performed to avoid Nyquist undersampling artifacts, that the filtering is adaptive and is a function of image signal parameters. However, Faroudja only recites a low pass filter and neither discloses nor suggests an adaptive filtering which is a function of image signal parameters as in the present claimed invention.

In view of the above remarks it is respectfully submitted that claim 24 is not anticipated by Faroudja. It is thus, further respectfully submitted that, in view of the above remarks, this rejection is satisfied and should be withdrawn.

Rejection of Claims 1-10, 13 and 14 under 35 U.S.C. 103(a)

Claims 1-10, 13 and 14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Faroudja in view of LeGall et al.

Neither LeGall et al. nor Faroudja (as admitted by the Examiner) disclose or suggest reconverting the filtered signal to the original format of the first signal to produce a reconverted signal as claimed in claims 1 and 13 of the present invention. Furthermore, neither LeGall et al. nor Faroudja disclose the specific sequence claimed in claims 1 and 13 of the present invention.

The specific sequence of the present claimed invention converts a received video signal to a different format and filters the converted signal. The filtered signal is

then reconverted back to the original format. The reconverted signal is then converted to a lower resolution signal and conveyed to an output signal. The sequence in which the steps of the present claimed invention are performed is important is neither disclosed nor suggested by either LeGall et al. or Faroudja when taken alone or in combination.

As both LeGall et al. and Faroudja fail to disclose or suggest the sequence of the present claimed invention including reconversion of the filtered signal to its original signal after filtering and prior to converting the signal to a lower resolution and encoding, it is respectfully submitted that LeGall et al., when taken alone or in combination with Faroudja do not make the present invention unpatentable. The Examiner equates converting to a lower resolution signal in LeGall to the conversion to a different format, filtering and reversion to the original format of the present claimed invention. As explained above, Applicant's reconverted format is then converted to a lower resolution signal. Such is neither disclosed nor suggest by either Faroudja or LeGall.

In his response to the arguments presented in the previous response, the Examiner claims that it would be clearly obvious to reconvert a signal into an original form. The Examiner fails to realize the significance of the sequence of the steps of the method claimed in claims 1 and 13. As discussed above, the original signal is converted to a different format, filtered and then reconverted prior to conversion to a lower resolution signal. Such is neither disclosed nor suggested by any of the cited prior art including Faroudja and LeGall.

Furthermore, even though LeGall discloses conversion of a signal to a lower resolution signal as stated by the Examiner, LeGall neither discloses nor suggests conversion of a filtered reconverted signal to a lower resolution signal as in the present claimed invention, let alone reconvert the signal to the original format as in the present claimed invention. The Examiner leaps to a conclusion that it would be obvious to reconvert the signal to its original form from the teaching of conversion to a lower resolution signal in LeGall. Even if the conclusion of the Examiner were proper, LeGall still would neither teach nor suggest reversion of a filtered signal to the original format and then conversion of the reconverted signal to a lower resolution signal as in the present claimed invention.

In view of the above remarks it is respectfully submitted that Claims 1-10, 13 and 14 of the present claimed invention are not obvious in view of Faroudja or LeGall

when taken alone or in combination. It is thus, respectfully submitted that this rejection is satisfied and should be withdrawn.

Rejection of Claims 11, 12 and 15 under 35 U.S.C. 103(a)

Claims 11, 12 and 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Faroudja in view of LeGall et al. and Scorse et al.

Scorse et al. neither disclose nor suggest that the number of pixels per line (1280) is significant as claimed in claims 11, 12 and 15 of the present invention. Scorse et al. disclose a system which permits the operator of a video image system to selectively transmit portions of the video image at an operator selected resolution" (see "Abstract" of Scorse et al.). The only thing even resembling a lines per frame to pixels per line relationship disclosed by Scorse et al. (see col. 3, lines 39-41) is "the video input signal is often stored in an array which has 768 pixels horizontally and 512 pixels vertically". Scorse et al. go on to say "the exact number of pixels into which a visual image is divided is not significant to the present invention".

The Examiner uses the disclosure in Scorse et al. to claim that the claimed 1280 pixels per line is an arbitrary number and could be less or more. The Examiner further states "the claimed 1280 pixels per line....is not supported by the specification by identifying the "Criticality" of the "1280" pixels per line".

The Examiner went on at that point of the Office Action indicating he disregarded the specific parameters disclosed and claimed by Applicant and, instead, considered those values to be "arbitrary".

Applicant disagrees that the statement that the criticality of this parameter (1280 pixels per line) is "not supported" by the specification. The disclosure repeatedly specifies this number and the specification and claims are clearly consistent with each other. In at least five different places in the specification, the description of the present claimed invention specifically refers to "1280" as the number of pixels per line (in combination with a specified number of lines per frame) according to this invention (see page 4, page 9 and page 12). The specification further states in the passage on page 9, line 35-Page 10, line 5 that reducing the reduction in the horizontal frame resolution from 1920 to 1280 combined with the filtering provided by processor 22 advantageously permits dual HD transmission on a single channel. Additionally, it is

respectfully submitted that there is no basis, in statutes or regulations or case law, that the word "critical" must appear in this application. This position appears to be fundamental to the rejection of the claims and it is respectfully submitted that this "requirement" should be disavowed and withdrawn and that claims 11, 12 and 15 should be allowed. In view of the above remarks, it is respectfully submitted that, contrary to the assertions of the Examiner, the reduction of the horizontal frame resolution from 1920 to 1280 is significant in the present claimed invention.

Furthermore, it is respectfully submitted that Scorse et al. add nothing to the combination of Faroudja and LeGall et al. which would make the present invention as claimed in independent claim 1, from which claims 11, 12 and 15 depend, unpatentable. Scorse et al. neither disclose nor suggest the sequence of the present claimed invention including reversion of the filtered signal to its original format after filtering and prior to converting the signal to a lower resolution and encoding as in the present claimed invention. It is thus respectfully submitted that in view of the above remarks and the remarks regarding the rejection of claims 1-10, 13 and 14 that claims 11, 12 and 15 are not unpatentable in view of Scorse et al. when taken alone or in combination with Faroudja and/or LeGall et al. and thus this rejection is satisfied and should be withdrawn.

Rejection of Claim 18 under 35 U.S.C. 103(a)

Claim 18 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Faroudja in view of Scorse et al.

Applicants disclose and claim an encoded information or a signal representing a picture format defined by 1080 lines by 1280 pixel/line (i.e., "1080 x 1280"). None of the art of record, including Scorse et al. and Faroudja, disclose or suggest such a format as admitted by the Examiner. The Examiner once again uses the disclosure of Scorse et al. to claim that the claiming of 1280 pixels per line is an arbitrary number and can be less or more pixels. As discussed above, applicants disagree with this determination. As discussed above, in at least five different places in the specification, the description of the invention specifically refers to "1280" as the number of pixels per line (in combination with a specified number of lines per frame) according to this invention (see page 4, page 9 and page 12). The statement that this parameter (1280 pixels per line) is "not supported" is not understood. The disclosure repeatedly specifies this number and the specification and claims are clearly consistent with each other. The

specification further states in the passage on page 9, line 35-Page 10, line 5 that reducing the reduction in the horizontal frame resolution from 1920 to 1280 combined with the filtering provided by processor 22 advantageously permits dual HD transmission on a single channel. Additionally, it is respectfully submitted that there is no basis, in statutes or regulations or case law, that the word "critical" must appear in this application. This position appears to be fundamental to the rejection of the claims and it is respectfully submitted that this "requirement" should be disavowed and withdrawn and that claims 11, 12 and 15 should be allowed.

Therefore, it is respectfully submitted that Scorse et al. add nothing in combination with Faroudja which would make the present invention unpatentable. In view of the above remarks it is respectfully submitted that Claim 18 of the present claimed invention is not obvious and that this rejection should be withdrawn.

Rejection of Claims 19-22 under 35 U.S.C. 103(a)

Claims 19-22 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Lim in view of Scorse et al.

Lim, as admitted by the Examiner, neither discloses nor suggests a 1080 x 1280 picture format as in the present claimed invention. Furthermore, the criticality of this picture format is evident from the claim as the claim recites that the horizontal information is converted from the decoded signal to a different resolution if the decoded signal has a horizontal image resolution of 1280 samples per line. Applicant agrees that Lim includes a number of tables therein listing transmission formats. However, Lim neither discloses nor suggests the specific format of the present claimed invention.

The Examiner takes the position that, because Lim discloses some formats with 1080 lines and various pixels per line and elsewhere, Lim discloses 1280 pixels per line in combination with various other numbers of lines, the "selection of a desired number of pixels" is "arbitrary" and "simply a design choice". The Examiner concludes, (see rejection of claim 1) that Applicant's claimed combination of "1080 x 1280" "would reduce transmission time/bandwidth of the transmitted signal" and is thereby "obvious". Applicants respectfully disagree with this assertion. That result is neither the motivation nor the desired effect sought for the claimed invention. The present invention is concerned with encoded information or a signal representing a picture

format defined by 1080 image lines and 1280 pixels per image line (i.e. “1080 x 1280”). The unique, claimed 1080 x 1280 picture format reflects a recognition by Applicants that this format advantageously results in a “hybrid” image resolution which high definition (HD) television receivers can easily decode and, with a minor software change, display (specification, page 4, lines 13-16; page 9, line 13-page 10, line 5 and elsewhere in the description).

Contrary to the Examiner’s position, Lim is absolutely clear and certain regarding permitted combinations of the number of active lines per frame and pixels per line. In all of the fourteen actual examples (Table I and Table II) presented by Lim, the relationship between active lines per field and pixels per line (“the formats” – column 5, line 9) is based upon the “aspect ratio” of the image to be displayed and, more specifically, on “a 16:9 aspect ratio, which is currently preferred for an HDTV system” (column 5, lines 10-11). Thus, based on the teaching of Lim, the aspect ratio must be taken into account when choosing the pixels per line and lines per field. It thus follows that Lim teaches away from an aspect ratio of 1080 x 1280 as in the present claimed invention and that the chosen pixels per line and lines per field are not independent from one another but must be chosen to provide a 16:9 aspect ratio.

As argued by the Examiner, Lim does state “Other aspect ratios could be used” (column 5, line 11). However, Lim does not describe any other aspect ratios and neither discloses nor suggests any combination of active lines per frame and pixels per line which is not based on an image aspect ratio. Simply stated, according to the Examiner, based on what Lim itself teaches, any combination of pixel per line and line per pixel combination would be appropriate as such combinations inherently have an aspect ratio, no matter how unusual the combination and how irrelevant to the teaching of Lim. Even in view of the disclosure of Lim, Applicant respectfully submits that it would be inappropriate based on the teaching of Lim to combine 1080 lines with 1280 pixels per line as in the present claimed invention since that would result in an apparently anomalous aspect ratio of 32:27 (Lim only teaches that these parameters are related to each other according to aspect ratio).

Thus, it is more accurate to state that Lim, the principle reference, taken for what it says, teaches away from the claimed combination of parameters.

The Examiner has cited Scorse et al. to show the resolution of 1080 x 1280 of the claimed invention. As discussed above, Scorse et al. disclose a “system (which)

permits the operator of a video image system to selectively transmit portions of the video image at an operator selected resolution” (see “Abstract” of Scorse et al.). The only thing even resembling a lines per frame to pixels per line relationship disclosed by Scorse et al. (see col. 3, lines 39-41) is “the video input signal is often stored in an array which has 768 pixels horizontally and 512 pixels vertically”. Scorse et al. go on to say “the exact number of pixels into which a visual image is divided is not significant to the present invention”. The Examiner concludes that as Scorse et al. disclose an operator selectable resolution that Scorse et al. must disclose the specific resolution of 1080 x 1280 of the present claimed invention irrespective of the relevance of Scorse et al. to the present claimed invention as well as the primary reference of Lim. The Examiner states that as Scorse et al. disclose that a reduction in pixels can be performed, that this teaching could be used to reduce the number of pixels disclosed by Lim. However, the Examiner has not made any connection between what Scorse et al. and Lim disclose in order to combine these references to thereby reach this conclusion. It is respectfully submitted that Scorse et al. fail to disclose anything relevant to the present claimed invention or to what Lim discloses. It is respectfully submitted that, like Lim, Scorse et al. should be considered only in the light of what IT (or Lim) discloses, not what is found in the present application. In that regard, it is submitted that Scorse is not combinable with Lim and is not an appropriate reference against the claims of the present application.

Therefore, it is respectfully submitted that Scorse et al. is not properly combinable with Lim and even should they be combined, that Scorse et al. add nothing to the disclosure of Lim which would make the present invention unpatentable. In view of the above remarks it is respectfully submitted that Claims 19-22 of the present claimed invention is not obvious and that this rejection is satisfied and should be withdrawn.

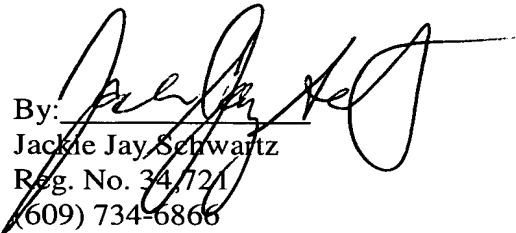
In view of the above-remarks it is respectfully submitted that claims 1-30 are now allowable.

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